

APPENDIX B.6

Evaluation of Best Available Control Technology

To evaluate BACT for the emergency engines and cooling towers, a number of California air district BACT determinations were reviewed.

Diesel Fired IC Engine BACT

BACT levels for the diesel fired IC engines are shown in Table B.6-1.

TABLE B.6-1 SUMMARY OF BACT RECOMMENDATIONS FROM DISTRICT GUIDANCE FOR DIESEL FIRED CI-IC ENGINES					
	NO _x , g/bhp	CO, g/bhp	VOC, g/bhp	SO _x , %S wt.	PM ₁₀ , g/bhp
CI-IC Engines	2.8 - 6.19	0.37-3.7	0.07 - 1.5	≤ 0.05	0.07 - 0.40
Tier II*	4.5	2.6	0.3	≤ 0.05	0.15
Tier III*	2.8-4.5	2.6-3.7	0.2-0.3	LSDF	0.15-0.22
*For the proposed engine hp categories and estimated mfg year (2010).					

The proposed diesel engines will also comply with the EPA Tier standards as applicable based upon engine size, year of manufacture, and service category.

The proposed fire pump diesel engine will comply with the CARB proposed Air Toxic Control Measure (ACTM) for Stationary Compression Ignition Engine (as amended). Since the FP engine is classified as emergency standby, with a rating greater than 50 hp, and operational hours consistent with NFPA 25 requirements, the PM10 performance standard to be met will be 0.22g/hp-hr using CARB certified diesel fuel. In addition the engine will comply with AQMD Rules and the Tier standards as delineated in Title 13 CCR Section 2423, based upon engine size, year of manufacture, and service category.

The proposed engines will also comply with NSPS Subpart IIII standards per 40 CFR 60.4205. Table B.6-2 presents the emissions standards for the proposed engines.

TABLE B.6-2 SUMMARY OF SUBPART IIII EMISSIONS LIMITS FOR DIESEL FIRED CI-IC ENGINES					
	NO _x + NMHC, g/bhp	CO, g/bhp	VOC, g/bhp	SO _x , %S wt.	PM ₁₀ , g/bhp
EGS Engine ¹ (~1341 hp)	7.9	8.5	1.0	-	0.40
FP Engine (~315 hp)	3.0	2.6	0.2	-	0.15
*For the proposed engine hp categories and estimated mfg year (2013).					
¹ Emissions limits in 40 CFR 89.112 converted from g/Kw-hr to g/hp-hr by 0.74 factor.					

BACT as proposed in Section 5.2, Table 5.2-10 will insure compliance with the Subpart IIII emissions requirements.

Cooling Towers

The cooling towers will meet a drift fraction rate of 0.0005% (0.000005). This limit is proposed as BACT for these cooling towers. The drift limit of 0.000005 will be achieved by using high efficiency drift eliminators.

HTF System

BACT for the HTF storage and distribution system will consist of the following:

- Nitrogen blankets on the HTF storage tanks.
- Monitoring of the nitrogen system to insure tank blanketing is sufficient to minimize HTF losses.
- Daily inspections of the tanks and distribution system for the presence of leaks in the areas of valves, flanges, and pump seals.
- Continuous maintenance of the system.
- Proper handling of HTF during delivery, transfer to the system, and waste disposal.

Auxiliary Boilers

The auxiliary boilers (2) will be meet BACT through the use of natural gas (clean fuel), and the use of low NOx burners (LNB). These units will operate an average of 12 hours per day (24 hours per day operation is possible), with maximum annual operations not exceeding 1000 hours per year (each). The units are rated at ~30 mmbtu/hr each. Full load firing is expected to consume fuel at a rate of 420 mmbtu/day (each). BACT decisions made by the South Coast AQMD during the period 9-15-2000 through 7-11-2003 for boilers in this size range showed the following:

- NOx BACT range is 9-15 ppmv @ 3% O₂.
- CO BACT range is 50-100 ppmv @ 3% O₂.
- SO_x, VOC, and PM₁₀/PM_{2.5} BACT is the use of clean fuels.

The auxiliary boilers as proposed indicate emissions (per the manufacturer) of NOx at a BACT level of 9 ppmv at 3% O₂, and CO at a BACT level of 50 ppmv @ 3% O₂. The use of natural gas would be considered BACT for SO_x, VOC, and PM₁₀/PM_{2.5}. As such, the proposed boilers meet BACT.